LABS
INTELLIGENT
STORAGE

Technical Specification

HyperSpace

Contents

1. Unit specifications

Unit dimensions:	8.9cm x 43.7cm x 63.0cm (3.5” x 17.2” x 24.8”)
Unit weight:	11.2kg (24.7lbs)
Input range:	180 - 240 VAC, 50-60Hz
PSU safety:	EMC - USA-UL listed. Canada-CUL listed, Germany-TUV certified, EN60950/IEC 60950-Compliant, CB report, CCC certification
Power supply:	Dual redundant 1000W removable PSUs

Power requirements standby:	11W
Power requirements full load:	200W

Operating temperature range:	5°C - 35°C
Non-operating range:	-40°C - 70°C
Operating humidity range:	8 - 90% non-condensing
Non-operating humidity range:	5 - 95% non-condensing

Unit form factor:	1U rackmount (rack mounts included)

Bootable replacement OS is provided on **Rescue Capsule** USB drive for fast system recovery.

2. Configurable capacities

- **HyperSpace** 3.8TB, 7.6TB, 15.3TB, 30.7TB and 61.4TB

3. Key Features

- **In-Flight Data Accelerator v.2 (IDA)**
  IDA with chaos cache together dramatically and dynamically improve workflows that need to live ingest or copy media in to central storage whilst working on this media from the same central storage. In these situations the storage users will see a much improved performance allowing for those time critical jobs to be processed efficiently without taxing the storage. IDA intelligently controls all layers from disk platter to network and works with smart cache tecnology Chaos Cache.

- **Speed**
  Each HyperSpace unit adds up to 3GB/s to SPACE and SPACE+ units. This huge speed increase enables HyperSpace powered units to handle 4K DPX workflows.

4. Performance

To guarantee stream performance, HyperSpace will utilise the full performance of its 12Gb SAS backplane, RAID controller and latest generation disks. Combining the raw performance with our IDA^2 and Chaos Cache technology, performance is sustained when delivered to network clients.

To dynamically expand performance there are three options;

1. Utilise SPACE or SPACE+ EX units collectively to enhance the system performance
2. Use both SPACE+ EX with 2 x EX Units collectively to enhance the system performance further.

The Hierarchial Storage Management (HSM) automated tiering of the GB Labs systems is key to efficient management of digital assets and the provision of sustained performance for all workstations. A Digital Asset Management (DAM) or Media Asset Management (MAM) server with 10/25/40./100GbE access to all storage platforms on the network, and in conjunction with the powerful automation functionality built into GB Labs servers, is able to push and pull data between CORE OS platforms within the network ecosystem.

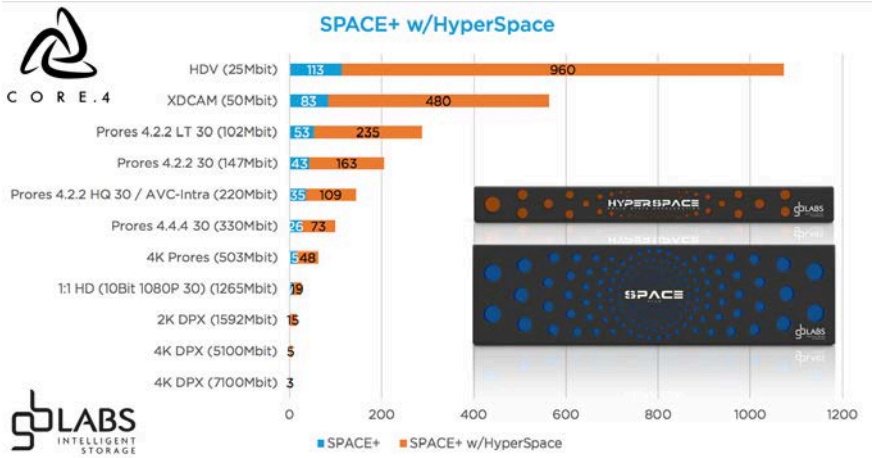
This functionality can move large quantities of data between storage volumes, without the inherent 'bottle-necking' usually associated with this type of topology. Therefore, the DAM or MAM server is able to work intelligently across the various available volumes of data, whilst keeping track of the growing number of assets.

As assets reach maturity, VAULT, in conjunction with GB Labs storage servers, can rapidly archive or re-establish assets in the future.

5. Performance Analysis - Delivery to Network

The chart below demonstrates a number of unique AV streams that can be read from a single HyperSpace with SPACE+ solution.

Each AV streams consists of a number of media files being pulled from the storage to a Non-linear Editing (NLE) timeline, where each file is unique.



6. File System

XFS is a 64-bit, high-performance, journaling file system used on all GB Labs storage platforms. XFS is particularly proficient at parallel I/O due to its design based on allocation groups. This enables extreme scalability of the I/O threads,

file system bandwidth, and file system sizes when spanning multiple storage devices.

XFS ensures data consistency by performing metadata journaling and supporting write barriers. Capacity allocation is performed through extents with data structures stored in B+ trees, improving the overall file system performance, especially when handling large files. Delayed allocation helps in preventing file system fragmentation, while online defragmentation is also supported.

As a feature unique to XFS, I/O bandwidth can be pre-allocated for a guaranteed rate, that is suitable for many real-time applications.

7. Data security and disaster recovery

Any single system that is being used for storage of valuable assets is susceptible to data loss and force majeure, regardless of how sophisticated the RAID level or clustering of the disks. It is critical that data is backed up and readily accessible for the purposes of business continuity and preservation of assets.

HyperSpace units can automatically replicate to other GB Labs servers on the network, which allows for data to be available in an emergency on a separate storage volume. Using long-range fibre, this can be up to 10km away.

GB Labs ECHO is the most popular backup or near-line solution for HyperSpace deployments, available in similar capacities to SPACE (up to 720TB per unit or further by expansion).

ECHO 36 is the larger of the ECHO storage range and comes with mirrored OS, dual 40Gbe and hot spare disks as standard with ECHO 36 EX for further expansion. With a native capacity of 448TB, this size of unit means that future expansion can go beyond 10PB utilising just one head unit.

It is also possible to re-purpose Fibre Channel RAIDs or SAS JBODs with ECHO Bridge to provide this replication function. For compatibility of RAIDs, please contact us.

The GB Labs range is also complimented by high speed LTO-6, LTO-7 or LTO-8 units that run comprehensive software designed to work within the GB Labs Ecosystem. CORE software will also connect to other network servers, allowing Archive, Backup and LTFS workflows to be flexible.

8. API and third-party integration

A complete and comprehensive API is available for third-party integration with functions of CORE OS, including, File Manager and HSM automation capabilities of all GB Labs servers.

In addition, there is also a complete API for the VAULT product range, which is also readily available to provide powerful integration with other servers running management services, such as; MAM and DAM software.

UK/ EMEA (HQ)
GB Labs Ltd
Units 1-2 Orpheus House
Calleva Park, Aldermaston
Berkshire, RG7 8TA
United Kingdom
Tel: +44 (0)118 455 5000
Email: info@gblabs.com
Web: www.gblabs.com

USA
GB Labs Corp
28494 Westinghouse Place
Suite 105
Valencia, CA 91355
USA
Tel: + 1 661-493-8480
Email: info@gblabs.com
Web: www.gblabs.com